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Effects of furanace on *Brachionus*

By

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Furanace is one of the chemotherapeutics being tested for control of bacterial and fungal diseases of *Penaeus monodon* larvae at SEAFDEC. It has already been found effective against a wide range of pathogenic bacteria and fungi in fish (1, 2), and in the fresh water prawn, *Macrobrachium rosenbergii* (3).

Tiger prawn *(P. monodon)* larvae utilize *Brachionus,* a rotifer, as food in the Zoea 3 and mysis stages when they change from an herbivorous to an omnivorous diet. The effects of furanace on the larvae have already been investigated (4). The present work aims to show the effects of furanace on the population growth of *Brachionus.*

Cultures of *Brachionus* were obtained from 2-ton fiberglass tanks maintained in the Natural Feeds Project. The rotifers were fed with *Chlorella* at a density of $1-2 \times 10^6$ cells/mL. Five liters of the culture water were placed in each of 4 white, circular, 152x304 mm plastic basins. The mean initial densities of the rotifer ranged from 26.5 to 38.5 individuals/mL. The concentrations of furanace (purchased from Dainippon Seiyaku, Osaka) were 0, 1, 2 and 3 mg/L. The cultures were vigorously aerated.

Population growth was observed after 3, 6, and 9 hours of exposure. The cultures were thoroughly mixed before samples were taken to ensure an almost equal distribtuion of the rotifers in the water. To facilitate the counting of the rotifer, one drop of Lugol's solution was added to each sample. This immobilizes the rotifer as well as stops further reproduction. Individuals with only the lorica left or with badly deformed lorica were considered dead. Population counts were done using a Sedgwick-Rafter counting chamber.

The mean densities and percentage survival of *Brachionus* in all treatments at all durations of exposure are shown in Table 1 and 2.

Table 1. Mean densities of *Brachionus* populations exposed to different levels of furanace*

Duration of Exposure	0 mg/L		1 mg/L		2 mg/L		3 mg/L	
	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
0 hr.	38.5	5.9	26.5	2.2	27.8	2.5	28	2.5
3 hr.	31.1	4.5	23.4	3	30.4	2.4	29.4	3.5
6 hr	30.4	3.1	31.8	5.2	37.2	2.8	30.8	4.6
9 hr	31.9	5.4	29.5	3.6	39.8	4.6	38	5.6

*Based on 4 trials; no statistical differences exist among the mean densities at 1% significance level.

Table 2. **Mean percentage survival of *Brachionus* populations exposed to different levels of furanace***

Duration of Exposure	0 mg/L		1 mg/L		2 mg/L		3 mg/L	
	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
0 hr	86	14	92	8	90.7	9.3	91	9
3 hr	88.2	11.8	90.4	9.6	95.5	8.5	89.5	10.5
6 hr	89	11	87	13	88.5	11.5	88.5	11.5
9 hr	86.5	13.5	89	11	91	9	88.25	11.75

*Based on 4 trials; no statistical differences exist among the mean percentage survival at 1% significance level.

Among the different durations of exposure, the percentage survival of the populations in the furanace baths were highest after 3 hr. There were slight increases in the control and 2 mg/L and slight decreases in 1 and 3 mg/L. The differences in the mean densities are statistically insignificant at .01 significance level.

After a 6-hr exposure, the control population reached its peak density with a survival of 89%. Populations in furanace baths decreased to 88.5% in both 2 and 3 mg/L, followed closely by 87% in 1 mg/L. Again, no statistical differences exist among all the levels.

The mean percentage survival in 1 and 2 mg/L increased (89% and 91%, respectively) after a 9-hr exposure, while those in the control and 3 mg/L decreased to 86.5% and 88.25%, respectively.

There were no marked differences in appearance noted among the individuals in furanace baths and those in the control.

Literature Cited

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